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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,101	11/18/2003	Robert H. Breeden	6-3714	6129
<div>7590 Thomas Hooker, Esq. Hooker & Habib, P.C. Suite 304 100 Chestnut Street Harrisburg, PA 17101</div>				
			<div>EXAMINER FRANTZ, JESSICA L</div>	
			<div>ART UNIT 3746</div>	<div>PAPER NUMBER</div>
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/716,101

Applicant(s)

BREEDEN, ROBERT H.

Examiner

Jessica L. Frantz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Examiner acknowledges the newly presented drawings 7 and 8.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 19-20 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Arnold 6,293,253. Arnold teaches the invention as claimed including a method of pumping high-pressure liquid to one or more components of an internal combustion engine (not labeled see column 4, lines 42-46) of the type having a high-pressure pump 10, a high-pressure outlet passage (not labeled) extending from the pump to the one or more components, a low-pressure inlet passage (not labeled) extending to the pump, a hydraulic inlet throttle valve 22 in the inlet passage, the inlet throttle valve having a spool (not labeled), a spring 24 biasing the spool toward an open position and a hydraulic chamber (not labeled) for pressurized liquid to bias the spool toward a closed position, a first flow path (not labeled see figure 1) between the outlet passage and the hydraulic chamber, a sump 16 and a second flow path (not labeled see figure 1) between the hydraulic chamber and the sump, comprising the steps of: by increasing flow of liquid through the inlet throttle valve 22 and the high pressure pump 10 when the

pressure in the outlet passage is less than a desired pressure by closing an on/off valve 30 in the first flow path and flowing liquid in the hydraulic chamber to the sump 16 and decreasing flow of liquid through the inlet throttle valve 22 and to the high-pressure pump 10 when the pressure in the outlet passage is greater than the desired pressure by opening an on/off valve 30 in the first flow path to flow high-pressure liquid from the outlet passage to the hydraulic chamber (see column 5, line 49- column 6, line 20). Arnold further teaches maintaining a flow of liquid through the inlet throttle valve 22 and to the high-pressure pump 10 to maintain a pressure in the outlet passage by preventing flow of liquid to or from the hydraulic chamber and alternating flowing of high pressure liquid from the outlet passage to the hydraulic chamber; or flowing liquid from the hydraulic chamber to the sump 16 (see column 5, line 49- column 6, line 20).

Claim Rejections - 35 USC § 103

4. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold et al. 6,293,253 in view of Ramseyer et al. 6,439,199. Arnold teaches the invention as claimed and as discussed above but fails to teach the following step as taught by Ramseyer: slowing the movement of the spool (22 of Arnold) toward the closed position by flowing fluid from the outlet passage to the hydraulic chamber through a restriction 260 for the purpose of creating a pressure differential to control flow (see Ramseyer column 14, lines 57-60). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include the restriction for the purpose of creating a pressure differential to control flow (see Ramseyer column 14, lines 57-60).

5. Claims 1-3 and 5-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold et al. 6,293,253 in view of Ramseyer et al. 6,439,199 and further in view of Barkhimer et al. 5,752,689. Arnold teaches the invention including a pump assembly as shown in figure 1 for flowing high pressure liquid to one or more components of an internal combustion engine (not labeled see column 4, lines 42-46) having a sump 16, the pump assembly including a high-pressure pump 10; a pump inlet passage (not labeled), a pump outlet passage (not labeled), a hydraulic inlet throttle valve 22 for flowing liquid to the pump through the inlet passage, the inlet throttle valve including a spool (not labeled) movable between open and closed positions, an inlet throttle spring 24 biasing the spool toward the open position, a hydraulic chamber (not labeled), the spool including a piston (not labeled) forming a wall of the hydraulic chamber wherein liquid of the chamber biases the spool toward the closed position against the spring 24 (see column 4 line 65-column 5, line 12 and column 6 lines 17-20); and a hydraulic circuit (not labeled see figure 1) including a first flow path (not labeled see figure 1) extending from the outlet passage to the inlet throttle valve chamber; a second flow path (not labeled see figure 1) extending from the inlet throttle valve chamber to the sump 16, and a first normally closed control valve 30 located in said first flow path, such control valve including a first valving member (not labeled see column 5, lines 15-18) having a fully open valve position and a fully closed valve position, a first spring (not labeled see figure 1) biasing the valving member to the closed position, a first solenoid (not labeled see figure 1) for moving the valving member toward the fully open position when actuated, wherein actuation and deactuation of the solenoid can rapidly shift the

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valving member between the open and closed positions without modulating flow through the valve 30 to flow liquid from the outlet passage to the inlet throttle valve or isolate the inlet throttle valve from the outlet passage. Arnold further teaches a second valve 34 located in the second flow path and the inlet throttle valve 22 is opened via the bias of the spring 24 at startup of the engine as shown in figure 1. Regarding claim 6, it is a mere matter of design choice to switch the biases of the spring and solenoid so that the solenoid acts to open the valve 30 and the spring tends to close it. The rearrangement of the biases presents no novel or unexpected result over biases used in the references. Use of such biases in lieu of those used in the references solves no stated problem and would be an obvious matter of design choice within the skill of the art. In *re Launder*, 42 CCPA 886, 222 F.2d 371, 105 USPQ 446 (1955); *Flour City Architectural Metals v. Alpana Aluminum Products, Inc.*, 454 F. 2d 98, 172 USPQ 341 (8th Cir. 1972); *National Connector Corp. v. Malco Manufacturing Co.*, 392 F.2d 766, 157 USPQ 401 (8th Cir.) cert. denied, 393 U.S. 923, 159 USPQ 799 (1968). Arnold further teaches the hydraulic circuit includes a pressure line 26 connected to the inlet throttle valve chamber, the pressure line forming a portion of the first flow path and the second flow path. Regarding claim 13, it is again a mere matter of design choice to select a normally open valve instead of the prior arts normally closed valve 30. The selection of a normally open valve presents no novel or unexpected result over the selection of a normally closed valve 30 used in the references. Use of such a valve in lieu of those used in the references solves no stated problem and would be an obvious matter of design choice within the skill of the art. In *re Launder*, 42 CCPA 886, 222 F.2d

371, 105 USPQ 446 (1955); Flour City Architectural Metals v. Alpana Aluminum Products, Inc., 454 F. 2d 98, 172 USPQ 341 (8th Cir. 1972); National Connector Corp. v. Malco Manufacturing Co., 392 F.2d 766. 157 USPQ 401 (8th Cir.) cert. denied, 393 U.S. 923, 159 USPQ 799 (1968). Arnold teaches the claimed invention as discussed above but fails to teach the following claimed limitations that are taught by Ramseyer: the second flow path includes a second control valve 204 including a second solenoid 225 and second valving member not labeled see figure 10 where the solenoid actuators of the system's electrical valves are controlled via an ECM 18 giving them the ability to meter flow through the system valves (see Ramseyer column 11, lines 27-33) with a quick response time (see Ramseyer column 4, lines 55-59). Ramseyer further teaches a restriction 260 located in a pressure line (not labeled that when placed in the pressure line 26 of Arnold, will slow movement of the inlet throttle valve (22 of Arnold) spool toward the closed position by reducing the pressure of flow to the inlet throttle valve (22 of Arnold). Also, since Arnold teaches the pressure line 26 forms a portion of both the first and second flow paths, the restriction 260 of Ramseyer is therefore, in both the first and second flow paths. Ramseyer teaches the inclusion of this restriction 260 for the purpose of creating a pressure differential to control flow (see Ramseyer column 14, lines 57-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a solenoid operated valve in the second flow path to give the ability to meter flow through the system valves (see Ramseyer column 11, lines 27-33) with a quick response time (see Ramseyer column 4, lines 55-59) and the restriction for the purpose of creating a pressure differential to control flow (see

Ramseyer column 14, lines 57-60). Both Arnold and Ramseyer fail to teach that the solenoid operated valves in the first and second flow paths are fast acting two-position on-off valves which only have a fully open and a fully closed position. Barkhimer teaches a two position fast acting on-off valve assembly 50 which only has a fully open and a fully closed position for use in a fuel injection system in order to dramatically improve durability and cycle-to-cycle and valve-to-valve injection uniformity (see Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the fuel injection two-way on-off valves of Barkhimer in order to dramatically improve durability and cycle-to-cycle and valve-to-valve injection uniformity (see Abstract).

Response to Arguments

6. Applicant's arguments with respect to claims 1-3 and 5-22 have been considered but are moot in view of the new ground(s) of rejection.
7. In view of new grounds of rejection, this action is made **Non-Final**.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Linkner, Jr. 6,453,930; Parise et al. 4,316,600.

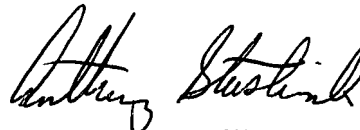
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica L. Frantz whose telephone number is 571-272-5822. The examiner can normally be reached on Monday through Friday 8:30a.m. - 5:00p.m. E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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